Research Report

Prepared for
NORTHERN ALBERTA
DEVELOPMENT COUNCIL

HIGHWAY 55

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REPORT ON HIGHWAY 55

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1.0 EXECUTIVE SUMMARY

The purpose of this report was not to set priorities for the area. but to look at the potential benefits of paving the road, to the area, the region and the Province.

Considerable interest in having the highway paved has been expressed by a wide variety of interest groups.

Potential tourism and recreation developments are viewed as the primary reasons for paving the highway.

The highway has undergone fairly continuous improvement since the mid 1970s.

Paving the remaining 78 km would result in an increase in maintenance costs of 46% (1986 dollars).

Capital cost to pave the 78 km in 1986 dollars, is estimated (order of magnitude) at $24.2 million.

The volume of traffic on the paved portion is approximately 2.87 times greater than that on the gravel surface.

Economic value to the area from agriculture, forestry, oil and gas, and, recreation and tourism in 1985 dollars, on an annual basis, is $26.4 million.

Potential increases in economic values in the tourism and recreation sectors alone, are approximately $4 million in expenditures by 1990, and $1 million (minimum) in capital investments.

The large urban population of Edmonton would utilize a major destination facility in the Lakeland area similar to Calgary and Kananaskis Country.

Efforts should be initiated to get the paving of the highway scheduled immediately.

2.0 PURPOSE/OBJECTIVE

Over the last number of years, the Northern Alberta Development Council (NADC) has been the recipient of numerous briefs and presentations concerning Provincial Highway No. 55, particularly the section in northeast Alberta between its junction with Highway 36 south of Lac La Biche and the beginning of pavement at Iron River. See Figure 1 for general location. The briefs and presentations have been authored by a variety of interest groups, organizations and individuals, and share a common theme of advocating the extension of pavement on Highway 55 from Iron River west to Highway 36.

In response to these local individual representations, the NADC determined that a report should be prepared on the improving and paving of the highway. The report is to include the resulting benefits to the economic sectors of tourism, economic development, agriculture and industry, etc., in the area adjacent to the road, and to the broader northeast area including Lac La Biche, Cold Lake and Bonnyville. In essence the objective of this report is to canvass facts, comments, opinions and assessments from those parties involved with the highway from a variety of perspectives and synthesize them into a concise, succinct and comprehensive report.

This report was authorized by way of a letter from NADC dated September 10, 1986. Primary and secondary research was initiated toward the end of September and continued throughout October, resulting in the preparation of this report in late October with submission to the NADC in November. Review and revisions occurred in December prior to final submission.

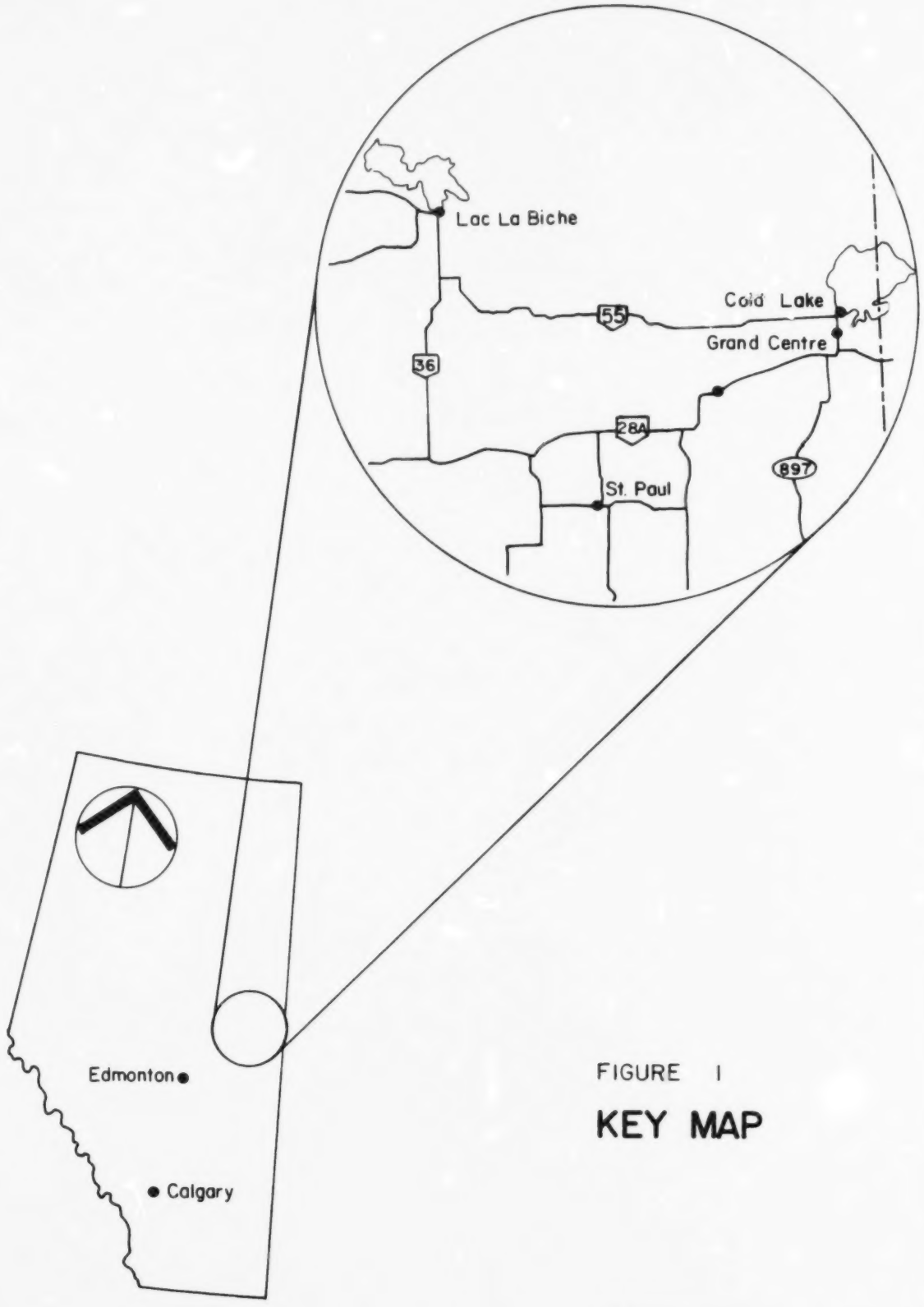

FIGURE 1

KEY MAP

I.D. SYSTEMS LTD.
Environmental and Socio-Economic Consultants

3.0 REGIONAL PERSPECTIVE

Highway 55 is the most northerly east-west route in northeast Alberta that, combined with Highways 2 and 49, spans the width of the province. In northeast Alberta it is the shortest and most direct route between Lac La Biche and the tri-town area of Cold Lake, Grand Centre and Medley (150 km). The highway is used for a multitude of purposes including: accessing the prime, but as yet largely underdeveloped, recreational lakes and campgrounds immediately to the north: accessing the heavy oil deposits at Wolf Lake by BP; and the May, Ethel and Lemming Lake area by Esso Resources Canada; accessing the Lac La Biche forest for timber harvests; linking the east and west areas of Improvement District 18 South (I.D. 18S); accessing the westerly portion of the Primrose Air Weapons Range for oil and gas exploration, and for timber harvests: functioning as a segment of the inter-provincially recognized, Northern Woods and Water Route between Winnipeg, Manitoba and Dawson Creek, British Columbia; and linking farmers in the area with the local agricultural centre of St. Paul.

4.0 BACKGROUND INFORMATION

4.1 Highway Particulars

Highway 55 is 244 km in length from its western terminus at Athabasca to its eastern terminus at the junction with Highway 28 between Grand Centre and Cold Lake. The highway is paved in its entirety except for a 78 km stretch between the junction with Highway 36 south of Lac La Biche and Iron River. This 78 km stretch represents 32% of the length of the highway.

Except for approximately 16 km on either side of Rich Lake, the road has been upgraded to primary highway standards. This upgrading has taken place since 1981 and should be completed in 1987. Currently, eight km west of Rich Lake (east of SR 866) is under construction with a further eight km to the east starting at Rich Lake tentatively scheduled for upgrading in 1987. The primary highway standard consists of a 12-metre wide subgrade with a gravel surface. With this standard met, the road is ready for pavement but can last indefinitely with regular grading and regravelling every two to three years.

The highway in general is in excellent condition for a gravel surface. It's carriageway is very wide from the Highway 36 junction to a point approximately 30 km east at Rich Lake. This narrower segment then continues for approximately 8 km before widening again at an access road to the Inglewood/Pinehurst Lake area. This widened gravel surface continues to a point six km west of the Iron River junction where some asphalt mix on the road can be seen and where the road narrows again and has narrow, steep shoulders. The posted speed limit from the junction of Highway 36 to Iron River is 90 km/h. From Iron River east to the junction at Highway 92 (Esso

Resources Cold Lake cutoff) the pavement is still narrow as are the shoulders. From Highway 892 into the junction with Highway 28 the pavement and shoulders are wider and are paved as well. The posted speed limit east from Iron River is 100 km/h reflecting the better and wider roadway.

4.2 Summary of Briefs, Presentations, Studies, and Reports

In order to provide some perspective for this report, the following provides a chronological summary of the various briefs, presentations, studies, and reports that have been prepared with reference to the study area in general and the unpaved section of Highway 55 in particular. While not necessarily an exhaustive summary, it is reasonably comprehensive.

i) Title: A Brief Concerning the Northern Woods and Water Route in Northern Alberta
Date: December 1981
Reference: NADC Brief No. 710
Author: The Northern Woods & Water Route Association

This brief pointed out that the four western provinces, including Alberta, formally recognized this route in 1980. The Alberta segment is 763 km long including 98 km of gravel surface. Of particular concern was the 78 km gravel section between Iron River and the Highway 36 junction. The Association advocated paving the gravel section because it was essential for the recreational development of the area; it was a major northern, east-west link with north-south connections; and that it would encourage tourism in the area.

ii) Title: Presentation to the Northern Alberta Development Council
Date: June 12, 1984
Reference: NA
Author: Community Advisory Committee, Mr. D. Appleby

The Community Advisory Committeee (CAC) brief emphasized the need for development of recreational facilities in the region to stem the leakage of tourism and recreation dollars to Meadow Lake Provincial Park in Saskatchewan. It also made the rather ironic point that while roads in the U.S.A. were being paved with asphalt made from Cold Lake oil, a local provincial highway in the oil field had not been paved. Reference to the condition of the road was also made with the inference being that wet weather made the road nearly impassable. The brief concluded with 10 recommendations, one of which encouraged the immediate pavement of the remainder of Highway 55 west through the Lakeland.

iii) Title: A Brief of Concerns to the Northern Alberta Development Council
Date: June 12, 1984
Reference: NADC Brief No. 1151
Author: Town of Grand Centre

The Grand Centre brief raised four primary matters of concern to the NADC. One item advocated the early approval for the completion of paving on Highway 55. Rationale for the request was the route's importance in terms of tourism and increased oil activity in the area.

iv) Title: Presentation to the Northern Alberta Development Council
Date: June 12, 1984
Reference: NADC Brief No. 1154
Author: Betty Duckett, Planner, ID 18 South[1]

This brief listed five concerns and included eight recommendations regarding tourism in the region. Of the five concerns, Highway 55 was listed second. Reasons for the support for the paving of

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[1] The consultant was unable to determine whether this brief was submitted on behalf of ID 18 South or as a resident of ID 18 South.

Highway 55 was explained as enhancing and expediting the movement of agricultural commodities, promotion of the Northern Woods and Water Route, linking industrial expansion areas in the north, and enhancing the development of tourist/recreational capabilities in the Lakeland Integrated Area.

v) Title: Letter to Mr. N. Weiss, MLA, Chairman, NADC
Date: June 12, 1984
Reference: NA
Author: Regional Economic Development Council, Lac La Biche

The letter was in reference to the REDC's submission to the Lakeland Integrated Resource Planning Group and the Lakeland Integrated Resource Plan. Of the four comments made, one was in reference to transportation and stated, "The presently established major routes, accessing the Lakeland, Highways 55, 36 and (SR) 868, must be upgraded if tourists are to use them in any volume."

vii) Title: Lakeland Tourism Association Workshop Report
Date: September 22, 1984
Reference: N/A
Author: NADC

The workshop was held in direct response to the numerous tourism-related briefs presented to the NADC at the public meetings in Cold Lake on June 12, 1984. (See above ii, iii and iv.) Transportation items were identified as the number one priority by 46% of the participants. Specifically, the improvement in road conditions (paving) of Highways 55 and 36 was key. Participants believed that infrastructure development was the key first step in the development of the recreation potential in the area. A recommendation was made that "the Lakeland Tourist Association in co-operation with the community groups review the region's transportation needs and approach Alberta Transportation with a priority list".[1]

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[1] Subsequent research finds that informal discussions were held with various government officials, but that a formal brief was not submitted to Alberta Transportation.

viii) Title: Water Based Cold Lake Provincial Park - Regional Tourism Access Routes
Date: October 1985
Reference: NADC Brief No. 1544
Author: Town of Grand Centre Economic Development Committee

This brief was addressed to Mr. M. Moore, past Minister of Transportation and indicated support for improving access routes to regional tourist attractions, in the area including Cold Lake Provincial Park, Kinosoo Ridge Ski area, French Bay and English Bay campsites, and the Cold Lake Fish Hatchery. It was felt that improving access would increase attendance and be of economic benefit to the region, Alberta and Canada.

ix) Title: Travel Alberta - Industry Relations and Training Unit Questionnaire
Date: 1985 (currently being revised)
Reference: NA
Author: The Northern Woods and Water Route Association

The Northern Woods and Water Route Association (NWWRA) completed this questionnaire at the request of Travel Alberta. The NWWRA in 1985 represented 190 members along or adjacent to the route (included members in B.C., Saskatchewan and Manitoba as well as Alberta). 32% (60) of the 190 members were from Alberta. The Association which was founded in McLennan, Alberta in 1973 has as its top long-term goal, the paving and signing of the entire route. The Association has organized annual cavalcades over the route to prove that it does exist, that it does have excellent tourist potential as well as commercial potential, and is an inter-community and inter-regional link. Representations have been made to the transportation departments in each province. The NWWRA views Travel Alberta's role as encouraging the completion of paving of Highway 55.

x) Title: Untitled - Letter to Mr. Al "Boomer" Adair, Minister of Transportation and Utilities
Date: June 4, 1986
Reference: NA
Author: Lac La Biche Regional Economic Development Council

This letter presented the REDC's priorities to Mr. Adair. Their first priority is the paving of Highway 36 south from Lac La Biche to Highway 28. Secondly, the upgrading and paving of Highway 55 east from Highway 36 to Cold Lake. It is viewed as the key to development of tourism in Lakeland. The third priority is the construction of the southern leg of the Lac La Biche-Conklin-Fort McMurray road.

xi) Title: Untitled - Letter to the Chairman of the REDC, Mr. T. Langford
Date: September 4, 1986
Reference: NA
Author: The Honourable Mr. Al 'Boomer' Adair, Minister of Transportation and Utilities

Mr. Adair responded to the REDC letter of June 4, 1986. In his reply he updated the status of the Highway 36, 55 and Fort McMurray-Conklin-Lac La Biche roads. As well he states that surfacing of Highway 36 would be the next priority and that it would continue as available funding and provincial priorities permit. In regard to Highway 55, Mr. Adair advised that there remains one regrading project to be tendered in the next year or so and once it is completed, surfacing would be considered. He notes that the timing of the surfacing would be dependent on future budgets and overall provincial priorities.

xii) Title: New Designation of Lac La Biche-Conklin-Fort McMurray Road to Highway 36 and the Requirements for Road Infrastructure in Northeast Alberta
Date: September 16, 1986
Reference: NADC
Author: Lac La Biche Regional Economic Development Council

This brief to the NADC states that northeast Alberta has seen the least road construction of any part of the province and lags far behind other areas. To help rectify this, the REDC requests that the following roads be upgraded and paved: Highway 36 between Lac La Biche and Highway 28, Highway 55 between Lac La Biche and Cold

Lake/Grand Centre, the Plamondon cut off, an access road to the Plamondon campsite, and the construction of an all-weather road between Lac La Biche, Conklin and Fort McMurray.

xiii) Title: Untitled letter to the Honourable Mr. J.A. Adair. Minister of Transportation and Utilities
Date: October 1, 1986
Reference: NA
Author: Lac La Biche Regional Economic Development Council

This letter is in follow up to the previous correspondence between Mr. Adair and the REDC. The letter points out that development of Highway 55 is supported in both the Lac La Biche regions and the Cold Lake/Grand Centre/Bonnyville area, as a requirement for the development of tourism on the Lakeland. The letter requests that "paving commence next year from both ends, specifically in our region between Highway 36 and the Macrae corner".

xiv) Title: Economic Development Opportunities in Northern Alberta Region 9, Lac La Biche/Athabasca
Date: September 1985
Reference: NA
Author: Currie, Coopers and Lybrand in association with J.F.T. Scott and Associates

As part of a major study commissioned by the NADC, these consultants canvassed northern Alberta. Their findings of constraints to development in this region insofar as roads are concerned are as follows:

- an all-weather road to heavy oil field developments is required
- an all weather road to existing shallow gas fields, recreational lakes, commercial fishing lakes and alternate route to Fort McMurray is required
- upgrading of roads exiting the region including #36 and #55 and improving the access from native settlements is required
- the policies of government which are perceived to represent constraints to the economic development potential of the area include a policy toward the development of a mature road infrastructure, and a policy towards the development of the Lakeland recreational area.

xv) Title: Economic Development Opportunities in Northern Alberta Region 10 - Cold Lake, Grand Centre and Bonnyville
Date: September 1985
Reference: NA
Author: Currie, Coopers and Lybrand and J.F.T. Scott and Associates

Economic development opportunities in this region were studied by consultants as part of a comprehensive review of opportunities in northern Alberta. One of eight economic goals, needs and priorities was to develop an improved system of road access to heavy oil developments. The infrastructure in the area is considered as a resource and community asset with the paving of Highway 55 between Iron River and Highway 36 as a tourist route being required. A constraint to the development of Grand Centre as a prime location for oil service firms, is the lack of a road linking the Esso Resources Cold Lake site to a proposed Dome heavy oil plant on the north edge of the Primrose Air Weapons range. Highway 55 could be part of the road system linking the two sites.

xvi) Title: Tourism - Lac La Biche Country - Blueprint for the Future
Date: September 1985
Reference: NA
Author: Lac La Biche Regional Economic Development Council

A comprehensive study of tourism impacts and potential was completed in 1985. A key study component was the status of the local infrastructure. The infrastructure issue is seen primarily as one of providing tourists and residents with adequate service facilities including suitable access roads. The study concludes that infrastructure is the third most important tourism resource next to people and the land. Specific recommendations regarding roads that are considered essential to the area include the paving and reconstruction of Highwy 55. A further eight roadway improvements are listed.

The preceding references indicate that Highway 55 has been a concern to various interest groups and municipalities since at least 1981.

In reviewing the preceding information, several reasons in support of paving the road recur throughout. The prime and most repeated reason is the benefit to tourism in the area, the premise being that a paved Highway 55 will attract more tourist traffic and make development of tourist sites and facilities more feasible. The second most often mentioned reason for the paving of Highway 55 is the recreation potential in the Lakeland area.

When tourism and recreation reasons are combined, they account for 51% of the reasons given for paving Highway 55. Figure 2 ranks the frequency of responses.

Figure 2
Ranking of Reasons for Paving Highway 55

		Number	% of Total	
1.	Tourism Development	20	33	
2.	Recreation Potential	11	18	51%
3.	East-West Linkage	7	11	
4.	Oil and Gas Potential	6	10	
5.	General Economic Benefits	5	8	
6.	Safety, Road Conditions	4	7	
7.	Agricultural Benefits	4	7	
8.	Timber Potential	2	3	
9.	Parity with other areas	2	3	
	Total	61		

To summarize this section, one may conclude that the paving of Highway 55 is an issue that has seen numerous requests for resolution in the past. These requests often provide justification for the paving as was illustrated in Figure 2. However, little if any empirical evidence has been offered to substantiate the requests. Section 6.0 attempts to rectify this situation by considering several economic factors including agriculture, forestry, oil and gas, and tourism/recreation.

5.0 THE HIGHWAY

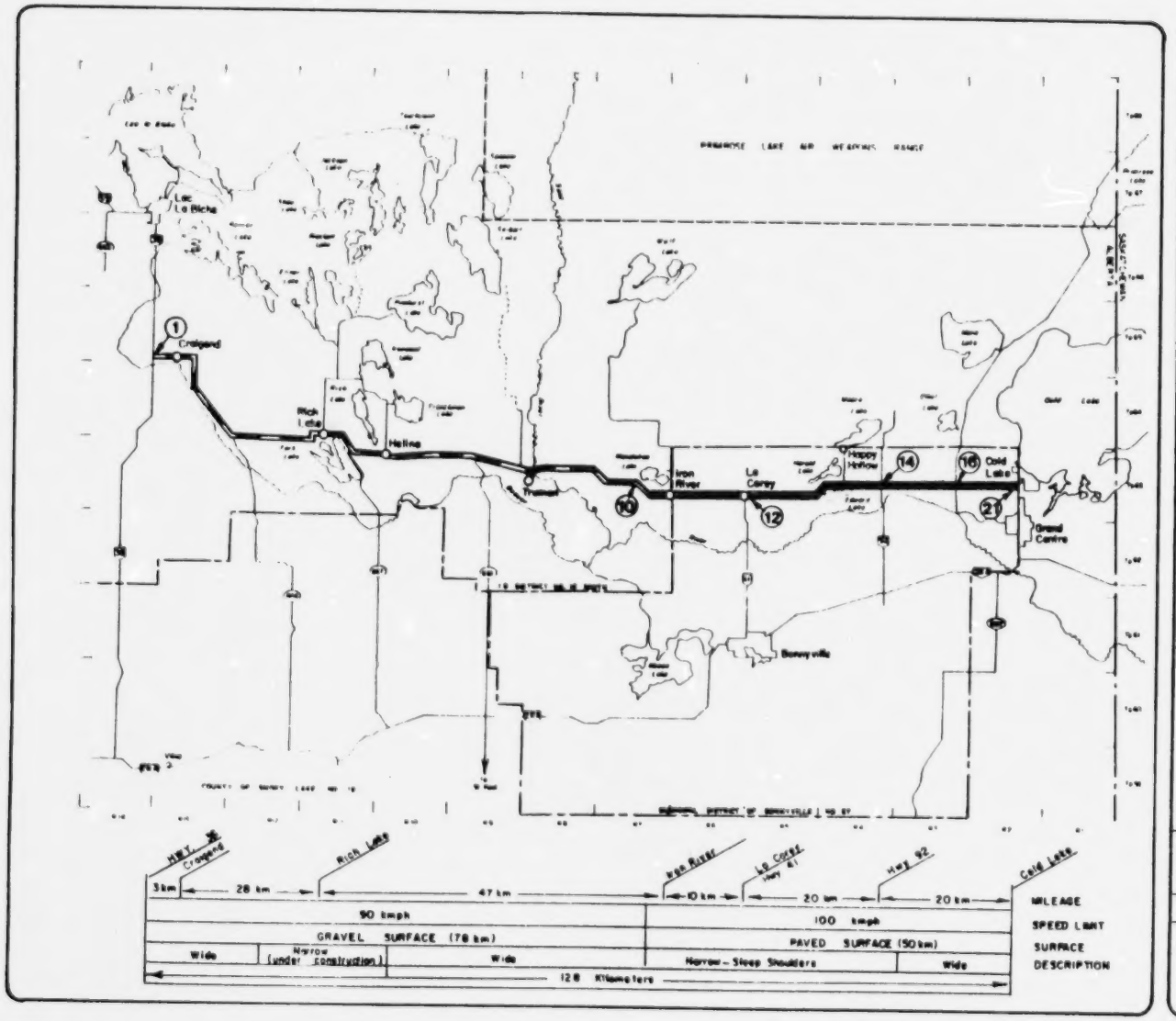
Highway 55 is an east-west highway in northeast Alberta running from Athabasca on the west to the Saskatchewan border, just east of Grand Centre. The highway is paved except for a 78 km stretch which is the focus of this study. See Map 1 on the next page.

5.1 Designation

Originally, Highway 55 started out as Secondary Road (SR) 662. In 1977, the Province upgraded its status to that of a provincial highway via Alberta Regulation 235/77, a status it has maintained to this day.

5.2 Physical History

Prior to its being designated a provincial highway, a portion of the road from Highway 28 to SR 892 was paved in 1975/76. This coincides with the access point to the Esso project which is at SR 892 or Highway 92 as it is now designated. In 1976, the section from Highway 92 to the La Corey junction at Highway 41 (SR 890) was also paved. This coincides with the BP/Wolf Lake project main access point. Three years later in 1979, the section starting just west of Iron River to La Corey was also paved. In 1981, the first section to be paved from Highway 28 to Highway 92 was widened and resurfaced. 1981 was also the start of the improvment of the base to a primary highway standard, that is, 12 metres in width. This improvement has continued since then with an 8-km stretch west of Rich Lake under construction in 1986. One regrading contract for the section from Rich Lake to the west (8 km) is expected to be tendered within the next year or so. When completed the entire 78 km stretch will be ready for paving.


Lac La Biche
Cold Lake
Grand Centre
Bonnyville
Hwy 2 Cregand
Rich Lake
Hwy 41
Hwy 41
Hwy 41

5.3 Order of Magnitude Cost Factors[1]

Current Maintenance Costs

Highway 55 requires maintenance of both its gravel and paved sections. Gravel road maintenance includes regravelling every two to three years, regular grading during the summer, occasional plowing in the winter, mowing shoulders and applying calcium chloride as a dust abatement measure. Annual maintenance costs per kilometre are approximately $1,600. Pavement has its own maintenance requirements including crack filling, mowing wider shoulders in the summer, regular plowing and sanding in the winter. Annual maintenance costs per kilometre are approximately $3,100 (94% higher).

FIGURE 3
CURRENT (MAINTENANCE COSTS)

Gravel @ $1600/km x 78 km = $124,800 annual maintenance costs
Pavement @ $3100/km x 50 km = $155,000 annual maintenance costs

TOTAL $279,800

PAVED

$3,100 x 78 km = $241,800/annual maintenance costs
$3,100 x 50 km = $155,000/annual maintenance costs
TOTAL $396,800

Paving the entire 78 km of gravel highway would require a 42% increase in maintenance expenditures on an annual basis over the entire length of the highway from its junction at Highway 36 to its junction at Highway 28. In addition to the annual maintenance costs there is of course, the capital cost of paving to consider.

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[1] Estimates of 1986 dollars supplied by Alberta Transportation

Capital Cost to Pave

Paving (9 metre finished blacktop including grading and base course)
$310,694/km ($500,000/mi) x 78 km = $24,224,129

This is an average but all-inclusive order of magnitude capital cost estimate for paving in northeast Alberta. If we assume a 5-year paving program, annual capital dollar expenditures would be $4,846,828 in 1986 dollars with approximately 16 km or 10 miles of blacktop being laid down each year.

5.4 Trends in Traffic Volumes[1]

Alberta Transportation has detailed traffic statistics for Highway 55 for the years 1978 to 1985. Their statistics include the monitoring location, date, number of hours monitored, vehicle type (private vehicle, recreation vehicle, bus, single unit trucks, tractor trailers), the AADT (average annual daily traffic) and ASDT (average summer daily traffic). Figure 4 illustrates AADT by Year and Location, while Figure 6 shows Vehicle type by Location.

In the study area, there are 21 monitoring locations. Of the 21, we have selected six to analyse and compare. The six chosen have been so selected to facilitate comparison of traffic volumes, types and trends on the paved as opposed to gravelled portion, and to obtain an indication of the impact of resource projects access (Wolf Lake-BP, and Moore, Ethel Lake-Esso), and major highway junctions (Highways 41 and 92). In order to make the comparisons easier, we have numbered the monitoring locations from one to 21. The six selected are shown on Map 1.

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[1] Source: Alberta Transportation, Corporate Planning Branch Traffic Information Services. April 1985. See Appendix A.

FIGURE 4

AADT by Year at Selected Locations

YEAR	LOCATION 1	10	12	14	16	21
	(GRAVEL)		(PAVEMENT)			
1979	180	-	540	-	-	1140
1980	270	-	560	-	-	990
1981	280	-	590	500	-	1300
1982	260	-	-	420	-	1080
1983	310	310	-	690	-	-
1984	366(E)	320	690	850	950	1730
1985	432(E)	460	700	840	1210	2100
%	140%	48%	30%	68%	27%	84%
	(18%p.a.)	(24% p.a.)	(5% p.a.)	(17% p.a.)	-	(14% p.a.)
Range	180-432(E)	310-460	540-700	420-850	950-1210	990-2100

(E) Estimate

One problem that has been observed with the data is the lack of complete consistency by location and date. Consequently, it is difficult to compare 1983 data from Location 1 (LOC 1) to LOC 21 where data is available for 1982, or 1984 but not 1983. To reconcile these data gaps, we have estimated data for some years and calculated averages for others where sufficient data has been available to manipulate. Please note that 1984 and 1985 had the most comprehensive data base with estimates only being required for LOC 1 in those years.

LOCATION 1 - East of Highwy 36, South of Lac La Biche, South Junction (Gravel)

AADT data is available from 1979 to 1983. The average yearly change in the AADT count was 18%. Based on this percentage, and AADT of 310 in 1983, the 1984 and 1985 estimates are 366 and 432 respectively. Overall between 1979 and 1985, the AADT has increased by 140%. In terms of vehicle types at this location over the 1978 to 1983 period, 70.3% were private vehicles, 10.7% recreation vehicles, 18.7% single unit trucks or tractor trailers.

LOCATION 10 - East of a local or approach road, SW-22-63-7-W4 Just prior to pavement beginning/ending west of Iron River (Gravel)

The AADT was only available for 1983, 1984 and 1985, and ranged from 310 to 460. The 1983 to 1985 change in AADT is 48% or 24% per annum. This latter figure is somewhat questionable because of its limited historic basis. In comparing AADTs from this location to LOC 1 for 1983, 1984 and 1985 we find the following: In 1983, the AADTs were identical. In 1984, LOC 10 AADT was 12.6% less than LOC 1, and in 1985, it was 6.5% more. Between 1983 and 1985, private vehicles made up 66% of the traffic, single unit trucks and tractor trailers 27%, and recreational vehicles 6%.

LOCATION 12 - East of Highwy 41 at La Corey (Access to Wolf Lake - BP Resources and Iron River battery - Mobil Oil)
(paved)

AADTs for 1979 to 1985 range from 540 to 700 which represents a 30% increase of 1985 over 1979. This increase is equivalent to a 5% increase per annum. In comparing the AADTs for LOC 12 to LOC 1 we find that the AADT at LOC 12 was 62% to 200% higher. Comparing LOC 12 to LOC 10, LOC 12 was 52% to 116% higher for the same years.

It should be noted that LOC 12's annual rate of increase is less then either LOC 1's or LOC 10's. If we ignore LOC 10 because of its lack of historic trends and concentrate on LOC 1 and LOC 12, and project their annual increases (accepting all the constraints and limitations of straight line extrapolation), we find that the AADTs at LOC 1 will exceed those of LOC 12 by 1990.

FIGURE 5
AADT PROJECTION TO 1990

	LOC 1 @ 18%	LOC 12 @ 5%
1985	432(E)	700
1986	510	735
1987	601	772
1988	710	810
1989	838	851
1990	989	893

It should be noted that similar results would not occur in comparing LOC 1 to LOC 14, 16 or 21.

The vehicle type breakdown for the years 1978 to 1985 at LOC 12 shows 77.5% private vehicles, 4.3% recreational vehicles, and 22.5% single unit trucks or tractor trailers.

LOCATION 14 - East of Highway 92 (SR892) north of Ardmore - Esso Resources access (Paved)

At this location, the AADT for the years 1981 to 1985 ranges from 420 to 850. The 1985 AADT of 840 is 68% higher then the 1981 AADT of 500 for an average annual increase of 17%.

In comparing locations, LOC 14 has a 20% to 166% higher AADT then LOC 1, LOC 10 or LOC 12, depending on the year, the only exception being in 1981 when LOC 14 was 15% lower than LOC 12. As this location is at the main access to the Esso Resources Cold Lake production facilities, higher traffic volumes are understandable as traffic from Bonnyville, Lloydminster and Cold Lake/Grand Centre would converge here.

Vehicle types between 1981 and 1985 were made up of 72.3% private vehicles, 4.6% recreational vehicles, and 22.5% single unit trucks or tractor trailers. It should be noted that while the percentage breakdown by vehicle type has not varied that greatly, the number of vehicles by type for LOC 12 and 14 (paved) are two to 10 times the number for LOCs 1 and 10 (gravel).

LOCATION 16 - East of a local road or approach, SW-23-63-3-W4 (Ethel Lake - Esso)

AADT figures are only available at this location for 1984 and 1985. Consequently. the 27% increase from the 1984 AADT of 950 to the 1985 AADT of 1210 is of limited comparison value. Rather than comparing change over time, comparisons between locations is more meaningful. In 1984, LOC 16's AADT ranged from 12% to 197% more than LOCs 1, 10, 12 and 14. In 1985, the range was 44% to 180%. Generally, the greater the distance between the locations the greater the difference in AADT.

The vehicle type breakdown for 1984 and 1985 at this location is heavily weighted towards private vehicles 84.8%, recreational vehicles only constitute 2.2% and single unit trucks and tractor trailers make up 12.4%. Again, absolute numbers of vehicles at this location, generally, far exceed those at LOC 1 and 10, although their percentage difference is not that great.

LOCATION 21 - West of Highway 28 at Cold Lake, north junction
(Paved)

AADT data is available from 1979 to 1985 (except for 1983) and range from 990 in 1980 to 2100 in 1985. From 1979 to 1985 the overall increase is AADTs is 84% for a 14% annual increase. Comparing AADTs for LOC 21 to the other locations shows that LOC 21 AADTs are from 74% to 533% higher than the other locations. As Loc 21 is at the junction of Highwy 55 and 28, and since traffic to the oil plants from the Cold Lake/Grand Centre service centre is high, this location's AADT data in relation to the other locations could be expected.

The traffic vehicle type breakdown at LOC 21 is similar to that of LOC 16. Over 80% of traffic is private vehicles, 14.4% is single unit trucks and tractor trailers, while less then 4% is recreational vehicles.

5.5 Gravel vs. Paved Comparisons

The preceding section has provided an overview of changes in AADT overtime, detailed the type of vehicles observed, and compared AADTs by location. The following section groups the data by surface type, gravel or paved, and compares those figures. It should be noted though, that the figures used, AADTs, are averages and to further average them can result in somewhat misleading statistics.

They can, however, be taken as reasonable indications of the data that they represent.

FIGURE 6
GRAVEL vs. PAVED

GRAVEL	L1		L10				
1984	366(E)	+	320	=	686 - 2 =	343	AADT/Yr
1985	432(E)	+	460	=	892 - 2 =	446	AADT/Yr
					789 ÷ 2 =	395	/Location

PAVEMENT	L12		L14		L16		L21				
1984	690	+	850	+	950	+	1730	= 4200 ÷ 4 =	1055	AADT/Yr	
1985	700	+	840	+	1210	+	2100	= 4850 ÷ 4 =	1213	AADT/Yr	
								2268 ÷ 2 =	1134	/LOCATION	

From the figures above, one may conclude that the volume of traffic on the paved surface is approximately 2.87 times more then that on the gravel surface (1134 ÷ 395 = 2.87).

In comparing vehicle types by surface type, see Figure 5.4.2, one can conclude that recreational vehicles make up a higher percentage of vehicles on the gravel surface than on the paved surface. On the gravel surface at LOC 1 and 10, the recreational vehicle percentages are 6 + 10.7% respectively. On the paved surface, the recreational vehicle percentage ranges from 2.2% to 4.6%. This observation would appear to contradict the statements made in interviews and in some briefs to the effect that recreational vehicle owners' would not use the gravelled portion of the highway.

Upon closer examination, this conclusion is unfounded. While indeed on a percentage basis more recreational vehicles were observed on the gravel surface, in absolute numbers, far more

FIGURE 7

Vehicle Type by Location[1]

Location			Private Vehicle (PV)	Recreation Vehicle (RV)	Bus Bus	Single Unit Truck (SUT)	Tractor Trailer Combination (TRTLCOMB)	Total Observations
1	GRAVEL	#	1319	201	5	311	40	1876
		%	70.3	10.7	<1	16.6	2.1	100%
10		#	1168	107	17	330	149	1771
		%	66	6	1	18.6	8.4	100%
12	PAVEMENT	#	4421	247	42	626	365	5701
		%	77.5	4.3	<1	11	6.4	100%
14		#	3442	220	32	594	474	4762
		%	72.3	4.6	<1	12.5	10	100%
16		#	2842	73	20	259	158	3352
		%	84.8	2.2	<1	7.7	4.7	100%
21		#	11893	468	118	1614	488	14581
		%	81.6	3.2	<1	11.1	3.3	100%

1 The number of vehicles observed by location is the total number observed over several periods of time (years) and their number of monitoring periods varies by location. For example, LOC 21 had 14 monitoring periods while LOC 10 had only five. Consequently, comparing these numbers vertically is misleading. It does not invalidate the distribution by vehicle type and actually gives a more realistic representation because of the observations at each location being taken over several years.

recreational vehicles were observed on the paved surface. The percentage decline on a paved surface vis-a-vis a gravel surface can be attributed to the overall increase in vehicles of all types on the paved surface. Consequently the claims made that recreational vehicles bypass the gravel surface are substantiated by the observations recorded.

6.0 FACTORS

i) Agriculture[1]

The study area falls within two agricultural districts administered by Alberta Agriculture from Lac La Biche and Bonnyville. Map 2 illustrates the area of these districts pertinent to the study.

In the western study area, there are approximately 14,500 acres of grain crops, 15,000 acres of hay, 16,500 acres of permanent cultivated pasture and 14,000 acres of grazing leases. A 1986 order of magnitude estimate of the value of the grain crops produced is shown below.

ACREAGE		YIELD		$/BU		TOTAL
7,250 acres barley	x	45 b.p.a.[2]	x	1.60	=	$522,000
7,250 acres oats	x	55 b.p.a.	x	1.00	=	$398,750
14,500 acres						$920,750

In addition to grain crops, this is a major livestock producing area. Approximately 12,000 head, including yearlings and calves, are raised in the area. Approximately 6,500 animals (cattle, calves, yearlings) are moved out annually by truck to stockyards and auctions at Clyde, Edmonton, Bonnyville and St. Paul. An order of magnitude estimate for the value of the livestock shipped out annually is shown below.

Average Value/Animal		No. of Animals		Total Value
$600	x	6,500	=	$3,900,000

In the eastern portion of the study area there are appoximately 63,000 acres of grain crops and 94,000 acres of hay and pasture

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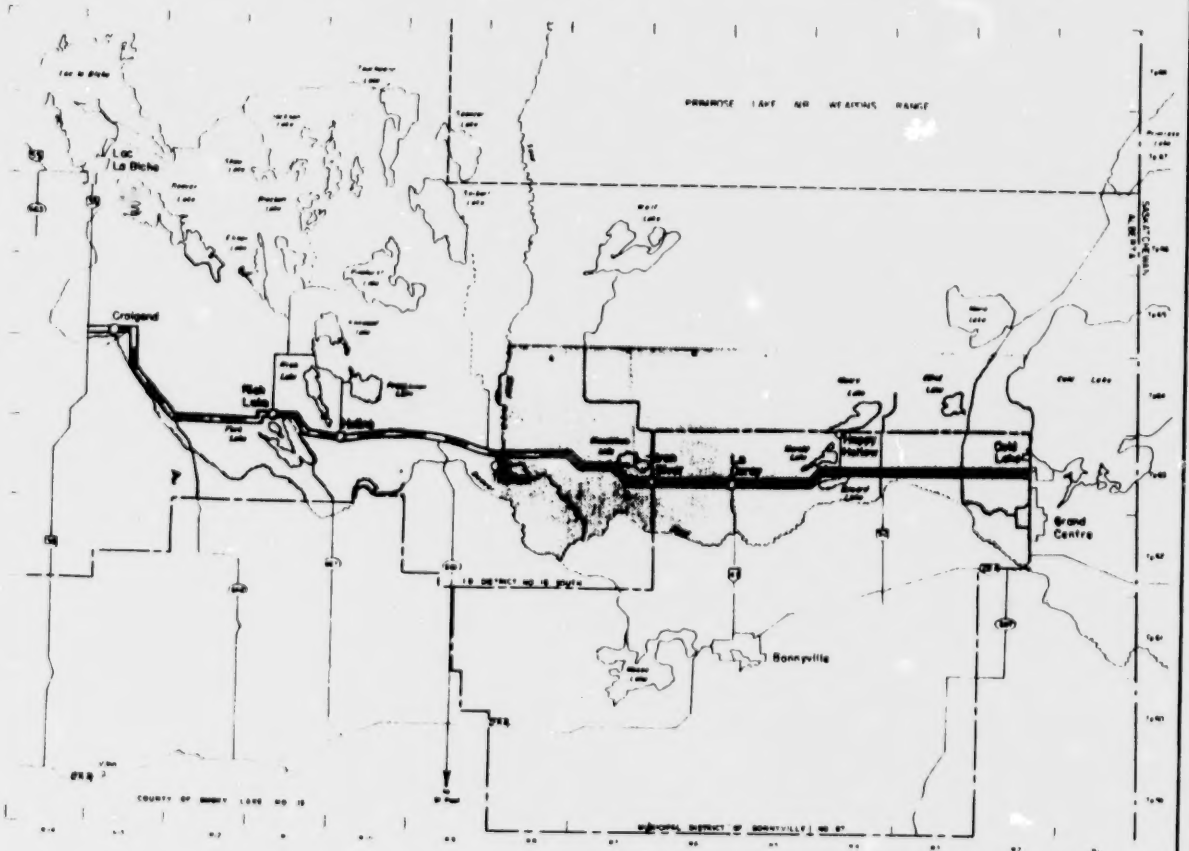
1 Source: Alberta Agriculture

2 Bushels per acre



HIGHWAY 55
Northeast Alberta
AGRICULTURE

Part of Agricultural District served primarily by Highway 55.

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date NOVEMBER 1986

Kilometers Scale 1:500,000
5 0 5 15 25

MAP 2

lands. An order of magnitude estimate of the value of the grain crops produced is shown below.

ACREAGE		YIELD		$/BU		TOTAL
47,232 acres barley	x	45 b.p.a.	x	1.60	=	$3,400,704
15,744 acres oats	x	55 b.p.a.	x	1.00	=	865,920
62,976 acres						$4,266,624

In addition to grain crops, this area is also a large livestock producing area. There are approximately 8,500 head, including yearlings and calves, raised in the area. Roughly 5,000 are moved out in any given year by truck to stockyards and auctions in Bonnyville, St. Paul, Clyde and Edmonton. An order of magnitude estimate for the value of livestock shipped out annually is shown below.

Average Value/Animal		No. of Animals		Total Value
$600	x	5,000	=	$3,000,000

In summary, the Highway 55 study area is home to grain production valued at just over $5 million, and livestock production valued at just under $7 million on an annual basis. There are approximately 300 farmers in this area who use Highwy 55 to take their grain and livestock to market on a regular basis. These same farmers also require the services of machinery and implement dealers, fuel trucks, and veterinarians to their farms, who must also use the highway. While the improvement of general living conditions is a factor in favor of paving the highway, a possibly more important reason for farmers is the impact of dust from the road on crop production. While no research was found, farmers suspect that dust reduces the yields on their field crops.

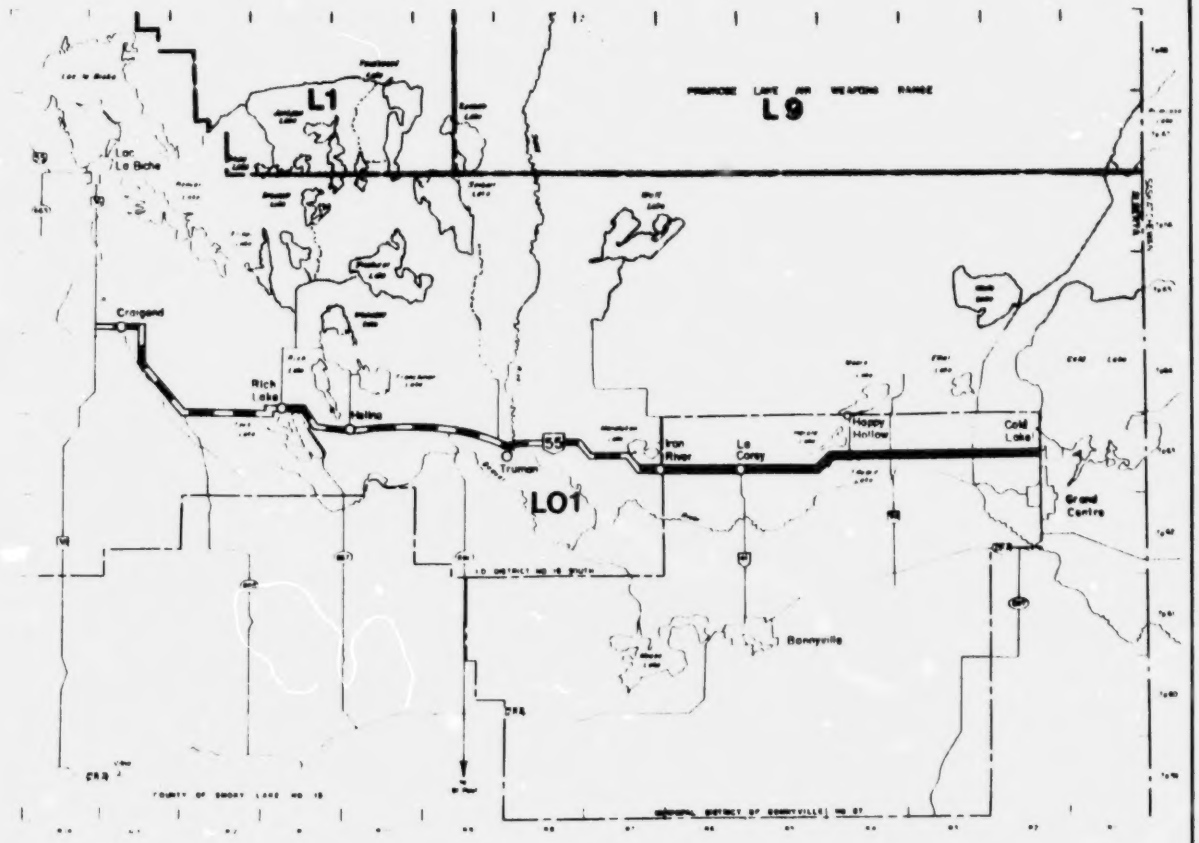
ii) Forestry

The Lac La Biche forest covers a broad area in the northeast part of the province. It's approximate boundaries are the North Saskatchewan River to the south, the Alberta/Saskatchewan border on the east, Highway 2 on the west and between Townships 81 and 85 to the north. The forest is divided into several Forest Management Units (FMU). The FMUs in, or impacted by, the study area are L1 and L9. Highway 55 actually is in an area designated as L01 which indicates that the area is outside of an FMU.

The L01 area is a more populated and more intensely farmed area. Substantial amounts of deciduous (aspen) timber can be found. However, no inventory figures are available. A portion of the L01 area immediately north of Highway 55 falls within the 'Green Zone' which indicates that the forest lands are not available for agricultural development other than grazing. The L01 area within the Green Zone is bounded by the southern boundary of the Primrose Lake Air Weapons Range on the north, the Saskatchewan border to the east, Township 64/65 to the south and approximately the Range 12/13 boundary on the west. Map 3 illustrates the FMU boundaries.

The FMU L9 is located within the Primrose Lake Air Weapons Range. Currently no timber is being cut in the Range because no agreement to that effect with the Federal Department of Defense has been worked out. While there is little deciduous in the Range, 8,268 m^3 (100%) of coniferous (spruce, pine) has been committed.

Access to both the Green Zone of L01 and FMU L9 is restricted to several improved and unimproved roads which are aligned in a north-south direction with their southern terminus being at Highway 55.



HIGHWAY 55
Northeast Alberta
FORESTRY

GREEN ZONE

L1 — LAC LA BICHE FOREST MANAGEMENT UNIT

LO1 — LAC LA BICHE FOREST AREA OUTSIDE FOREST MANAGEMENT UNIT

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Kilometers Scale 1:500,000
5 0 5 15 25

MAP 3

The third relevant FMU is L1 located to the north and east of Lac La Biche. This FMU consists of both coniferous and deciduous timber. 27 147 m^3 of coniferous timber are committed and 56 753 m^3 are uncommitted. None of the deciduous is committed while 108,100 m^3 are uncommitted. It should be pointed out that this FMU is presently bisected by the Northern Alberta Railway and may in the future contain the Lac La Biche-Conklin-Fort McMurray proposed highway. This FMU has more direct bearing on Lac La Biche itself but would likely have an indirect impact on Highway 55.

The Lac La Biche forest is not a big producing region in the province. The 1984-1985 timber harvest of 215 077 m^3 in the Lac La Biche forest represented 3% of the total provincial harvest. In order to calculate a value for this harvest, one must separate the coniferous harvest of 210 601 m^3 from the deciduous harvest of 4 476 m^3. Using the coniferous harvest, a value is calculated in Figure 8.

Figure 8

Coniferous Harvest Retail Value

Lac La Biche Forest

233 board feet per cubic metre x 210 601 m^3 = 49 070 033 m^3

49 070 033 m^3 ÷ 1000 = 49 070.03 board feet

49 070.03 x $196.40/board feet[1]

= $9,637,354.48 (say $9.6 million)

This figure estimates the total value of the Lac La Biche coniferous harvest in 1985. Of this, the three FMUs in the study area contributed 39 318 m^3 or 19% representing $1.8 million.

---

[1] 1985 Millprice or retail value of shipments based on monthly surveys of lumber producers. Source: Alberta Forestry Service.

The total coniferous Allowable Annual Cut (AAC) for the Lac La Biche forest is 497 104 m^3 or 3% of the provincial AAC. Following the calculation shown in Figure 6.1 the total value for coniferous harvest of the AAC (in 1985 dollars) is $22,748,076. Assuming the same proportional representation, the 3 FMUs in the study area would represent $4.3 million.

The deciduous AAC in the Lac La Biche Forest is 737 769 m^3 or approximately 6% of the provincial AAC. While in the past, deciduous harvests have not had much importance to the forestry industry, this is now changing. A variety of end uses have been investigated and, given the plentiful supply of deciduous timber, it should not be that far in the future before more commercial applications are in operation. Potential users of deciduous products include: an oriented strandboard plant, a chopstick manufacturer, a fuel supply for steam generating plants to provide power to remote or isolated enchanced heavy oil recovery projects, and a source of food for the cattle industry.[1]

Currently, in the study area only coniferous timber is being harvested. None of the major forest industries, i.e., St. Regis, Proctor and Gamble, Weldwood, etc., are active in the area. Most of the production is destined for the local and regional market and is milled at small local farm mills. The harvest in this area is generally conducted by local farmers and residents who use Highway 55 and 36 in getting timber to the mill and the product to market.

Increased usage of Highway 55 can be assumed if the timber harvest of coniferous and deciduous trees is expanded in FMU L1 and L01.

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[1] Currently a research project is being conducted at a feedlot near Athabasca where deciduous trees are treated, processed and utilized as feed for cattle.

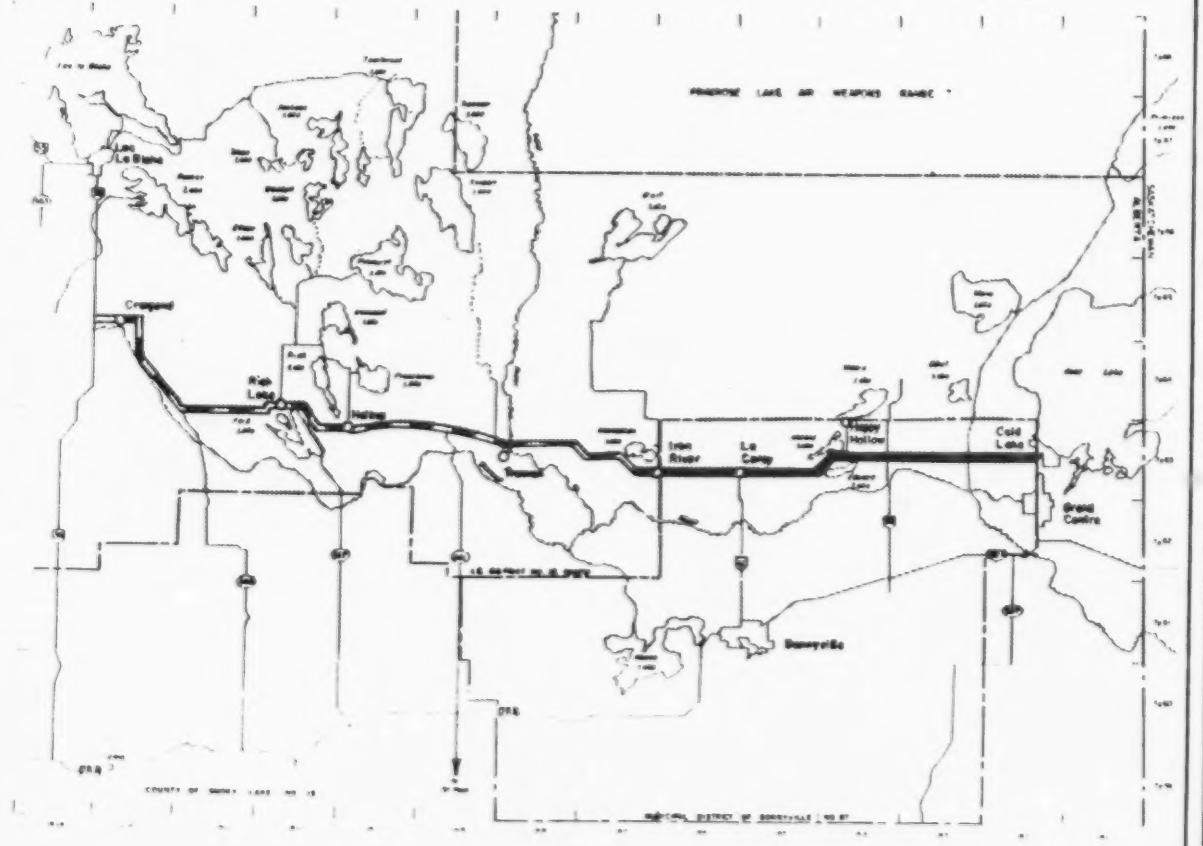
Certainly if FMU L9, the Primrose Lake Air Weapons Range, is opened to harvest, this will further increase usage of Highway 55. An increase in the number of loaded logging trucks on Highway 55 will physically deteriorate the road and necessitate increased repair and maintenance. A paved surface with an appropriate base will facilitate increased usage by the logging industry and not result in a road so beat up as to be impassable for private vehicles. The location of any manufacturing plant in the study area, or the use of deciduous trees in producing power for heavy oil projects, will further exacerbate the road condition between Highway 36 and Iron River.

It should be noted, however, that by its very nature, the forestry industry is comfortable with the use of 'logging roads' to get the timber to the mill. The real need for paved access is more essential in getting the product to market on tractor trailers.

While the forestry industry may be accustomed to 'logging roads,' the rest of the populace is not. Consequently, the need to pave Highway 55 may not be justified by the forestry industry but it certainly is by others who use the highway with logging trucks.

iii) Oil and Gas

The area indicated on Map 4 totals 1 090 908 hectares or 3,456 square miles. Of this total, 819 157 ha or 75% has been leased by over 120 oil companies or combination of companies with Esso Resources Canada Limited, Mobil Oil Company, BP Explorations, Alberta Energy Company, Dome, Petro-Canada, and Husky among the largest lease holders. The Cold Lake oil sands covers an area of approximately 8,200 square miles. The area of our study which is accessible from Highway 55 covers approximately 42% of this entire area.



HIGHWAY 55
Northeast Alberta
OIL & GAS

LEASE AREA SERVICED
BY HIGHWAY 55

IDS
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Environmental and Socio-Economic Consultants

date NOVEMBER 1986

Kilometers Scale 1 : 500,000

5 0 5 15 25

MAP

There is no question that the economic impact of the oil sands development is immense, not only locally, but regionally, provincially and even nationally as well. Esso alone has spent over $700 million on production development in the area over the last 15 years. BP has a large production facility at Wolf Lake, and Mobil has just announced a $12 million pilot project at its Iron River battery. This project alone will create almost 21 man-years of employment to construct (5 months x 50 people - 12 months) with a full-time operational staff of 30.

The economic impact of the oil and gas sector in this area overshadows all other economic sectors. The impact on this area has been studied, restudied and even further studied. It serves no purpose, nor could this report do justice in attempting to assess the empirical impact of the oil and gas industry on Highway 55. Having said that, however, a few observations can be made that illustrate this impact.

1. The first section to be paved from Highway 28 to Highway 92 (formerly SR892) in 1975/76 occurred during the buildup to the Alsands mega project in the late 1970s. The paving ended at the main access point to the Alsands areas.

2. The next section to be paved--from Highway 92 to Highway 41 (formerly SR890) at the La Corey junction--occurred in 1976. The Highway 41 junction coincides with the main access to the BP/Wolf Lake project and south directly to Bonnyville.

3. The third section to be paved occurred in 1979 and was from west of Iron River to Highway 41. At the time, there were no major production projects occurring or planned (to the

writer's knowledge) north of this area. However, Mobil Oil has just announced plans to proceed with construction of a $12 million pilot project at its Iron River battery.

From these three observations, one may conclude that paving of Highway 55 occurs in advance of the development of production projects in the oils sands. Following this line or reasoning, one is tempted to conclude that the gravel section of Highway 55 will be paved when oil field activity occurs further west and north of the highway.

While this may be a cynical conclusion, and relegates the other economic sectors in the area to second class status, it nonetheless is valid. However, a more reasonable scenario is an increase in oil field traffic on the gravel section of the highway.

This increase in traffic is likely to occur as exploration and development occur in the western side of the Primrose Air Weapons Range and the area northeast of Lac La Biche. Oil patch firms located in Bonnyville, Grand Centre and even Lloydminster such as Kodiak, Reid's Welding, Quinn Pumps, Diversified Transport, and FDS Oilfield Service, will use Highway 55 more and more frequently. Certainly, increased traffic volume and the type of vehicles will produce a deteriorating and more costly to maintain gravel surface. Paving will then become a necessity.

In an effort to determine a broad general minimum economic indicator of the oil and gas sector, we have used the actual cash bonus price paid by oil companies, over and above the Crown base price, for mineral rights purchased at Crown sales. The value is approximately $3.3 million and does not include any values paid for licenses or other transfers or interests in leases[1].

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[1] Source: Nickel Map Service Ltd. Alberta F Map. October 15, 1986.

Perhaps a better indication of the value of the oil industry in the area, is the number of companies doing business in this sector. A survey of oil-related businesses in the Bonnyville, Cold Lake, Elk Point, Grand Centre, Lac La Biche and St. Paul phone books shows approximately 200 firms located in these towns and serving the area (excluding Lloydminster-based firms). Of these, 27 or 14%, have offices in two or three of the towns. Bonnyville is the location of choice, having approximately 45% of the offices located there. The economic activity generated by these firms must be very significant to the regional and provincial economy.

iv) Road Conditions and Safety

Road Conditions

Implicit in the assessment of any roadway are concerns regarding the road's condition and safety. Highway 55 is no exception, as the consultant was made aware of concerns in several discussions and by reviewing the briefs.

Concerns that were mentioned include: the narrowness of some sections, particularly the eight km east of Rich Lake; the sharp shoulders on the section of pavement from Iron River to the Esso Resources turnoff at Highway 92; the clouds of dust that hang in the air on the gravelled section, reducing visibility; and the condition of the gravelled section during and after rains, as well as during spring breakup. Having had the opportunity to drive the highway only during nice weather this fall, the consultant cannot offer specific comments on the condition of the road during spring breakup or during or after rainfalls.

Insofar as narrow surfaces, steep shoulders and hanging clouds of dust are issues, all are valid points of concern. It should be noted, however, that the narrow sections are either currently under

construction (i.e., widening, of base of 12 metre width) or scheduled to be in the near future, so that this concern will be alleviated. Narrow and steep shoulders are a legitimate cause for concern, particularly by those who happen to leave the blacktop. We were able to determine that there are no plans in the immediate future to widen the shoulders from just west of La Corey to the junction with SR892. Given the volumes of traffic on that section and the preponderance of large oilfield service vehicles, serious consideration should be given to the widening of that section of Highway 55.

The problem of hanging dust is evident on the unpaved stretch between Highway 36 and Iron River. The dust reduces visibility and, consequently, makes travelling that section riskier, especially if one is attempting to pass slower moving vehicles. The gravel surface also creates potentially dangerous situations due to flying stones and rocks that are kicked up by oncoming traffic or vehicles one is following. To mitigate the effect of the clouds of dust, calcium chloride is applied to the surface annually and often a second application is also made. This, however, is only a temporary measure with the real solution being the paving of the highway.

Safety[1]

Notwithstanding the above, statistics do not indicate that Highway 55 has an above average accident rate. During the years 1983, 1984 and 1985, there were fewer than 100 accidents per 100,000,000 vehicle kilometres between Highway 36 and La Corey as compared to a

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1 Accident Statistics Source: Alberta Transportation.

2 AADT - Average Annual Daily Traffic. 1983 latest count available.

general provincial average for gravel surfaces of 100 to 125 accidents per 100,000,000 vehicle kilometres. In absolute terms, there were a total of 37 accidents during those three years, or roughly 12 per year. Put another way there was one accident per year every 7.4 kilometres.

The paved portion from La Corey to Highway 28, recorded 100 accidents per 100,000,000 vehicle kilometres, a figure which is slightly higher then the provincial average of 90 accidents per 100,000,000 vehicle kilometres for similar highways. In the three-year period from 1983 to 1985, 22 accidents were recorded, or roughly 7.3 per year. Put another way, there was one accident per year every 5.0 kilometres. The accident rates above of one per 7.4 km/yr and one per 5.0 km/yr would appear to indicate little difference between the gravel and paved surfaced highway segments. However, when one considers the average AADT for the years 1984 and 1985 for gravel and paved surfaces as shown on page 23, a ratio of 2.87:1 is identified in favor of the paved segment. Since this indicates that the volume of traffic on the paved segment is almost three times as great as that on the gravel surface, one might assume that accidents on the gravel surface should be a third of that on the paved surface. That is, accidents on the gravel surface should occur only once every 22.2 km. Conversely, accidents on the paved portion should occur three times as often as on the gravel surface or once every 1.67 km.

Consequently, one may conclude that given relative traffic volumes there are far more accidents on the gravel surface than on the paved surface in proportion to the amount of traffic.

v) Recreation and Tourism

The recreation potential of the Lakeland area has been of interest to the provincial government since the 1960s. Since then, through

various provincial departments and committees, policies and plans have been developed which recognize the value of the resource in the area. The Lakeland Integrated Resource Plan, approved by the Economic Planning and Resource Development Committee of Cabinet on June 19, 1985, gives recreational land uses "priority over all other land uses on crown lands having a high capability and demonstrated demand for a particular recreation activity."[1] The planning area, which encompasses the entire gravel portion of Highway 55, is shown on Map 5.

The Lakeland area contains over 44% of the Province's total accessible Class 1, 2 and 3 recreational shorelines and approximately 70% of the Class 1 shoreline. The area also supports a provincially significant recreational fishery. Recreational opportunities in the area include: angling for sportfish on any one of 19 fish bearing lakes and two river systems; boating and sailing; lake and river canoeing; primitive camping; swimming; day use and group camping; hiking; cross-country skiing; off-highway vehicle use and equestrian usage. Hunting is also an important recreation activity with the area containing significant populations of moose, and white tailed deer, and to a lesser extent mule deer and woodland caribou, black bear, wolves and upland game birds. Waterfowl hunting is also important in the southerly portion of the planning area. As well, the planning area is home to several bird species such as ospreys, great blue herons and bald eagles which attract people for bird watching.

Camping facilities have been developed and maintained by Alberta Forest Service, Alberta Transportation[2] and Alberta Recreation and

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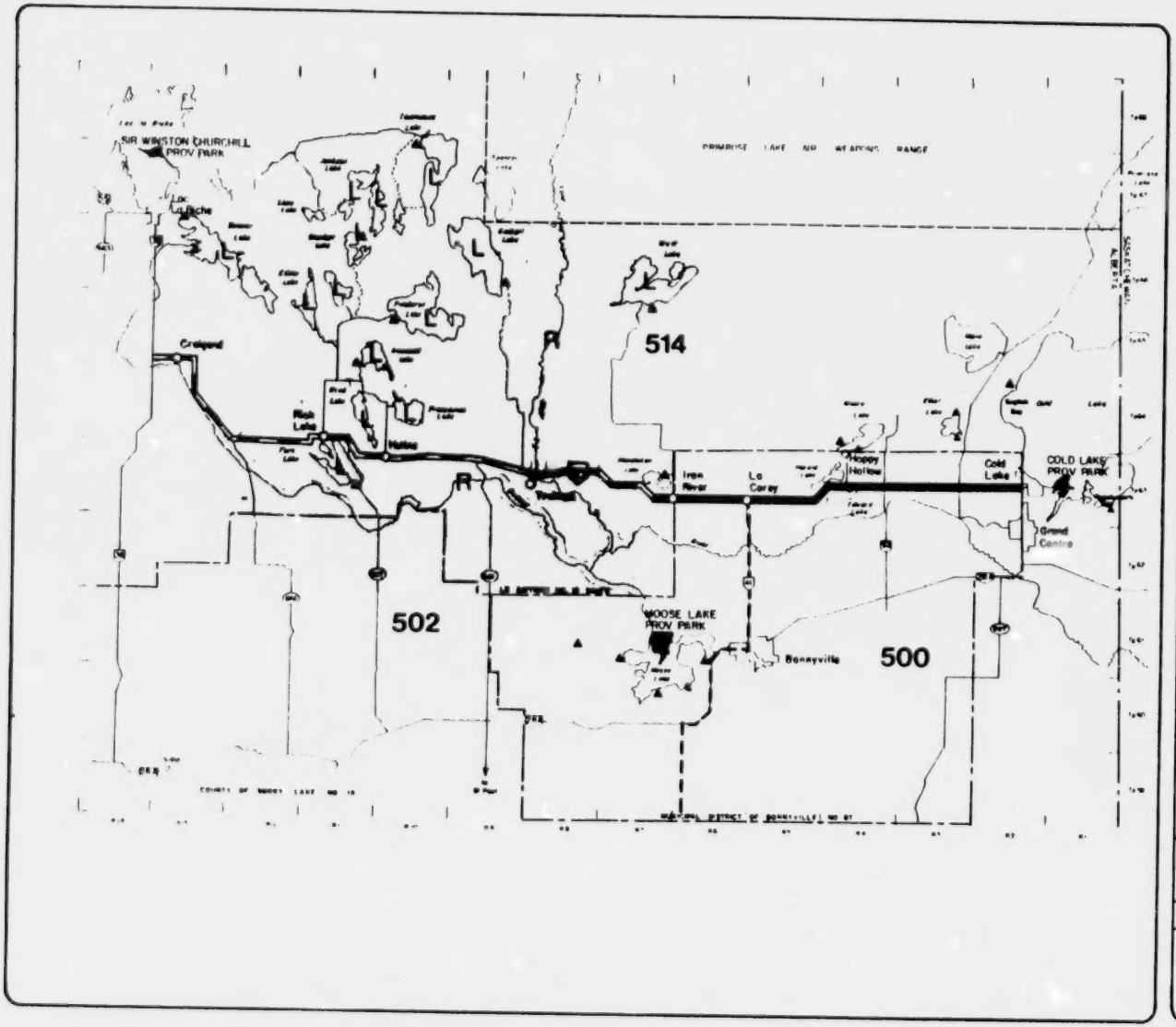
1 Lakeland Sub-Regional Integrated Resource Plan, P.1 Alberta Energy and Natural Resources 1985.

2 Alberta Forestry Service and Alberta Recreation and Parks have taken over management of former Alberta Transportation campsites.



HIGHWAY 55
Northeast Alberta
TOURISM

INTEGRATED RESOURCE PLAN AREA

▲ CAMPGROUND

■ PROVINCIAL PARK

L LAKE BASED RECREATION PRIORITY

R RIVER BASED RECREATION PRIORITY

500 WILDLIFE MANAGEMENT UNIT

IDS I.D. SYSTEMS LTD Environmental and Socio-Economic Consultants

date NOVEMBER 1986

Kilometers Scale 1:500,000

5 0 5 15 25

MAP 5

Parks at Touchwood, Siebert, Wolf, Ironwood, Pinehurst, Fork, Beaver, Manitokan, Moose, Ethel Lake, and at English and French man's Bay on Cold Lake as well as at Cold Lake Provincial Park. These facilities are primarily used in the May through September period with 35% of the users originating in Edmonton.[1]

In addition to campgrounds, cottage subdivision developments have also proven popular in the area. Beaver, Fork and Rich Lakes have existing cottage subdivisions with application for lots on Square Lake being reviewed. The area is a popular spot for country and residential and cottage developments, with 59% of the owners being non-residential.[2]

The Lakeland area is experiencing increased pressure for recreational opportunities. It is a prime location for residents of Lac La Biche, St. Paul, Bonnyville, Cold Lake and Grand Centre to spend vacation time. It is also a prime vacation area for Edmonton and region residents. As economic activity in the area increases, whether it be forestry or oil and gas, or National Defense, more pressure will be brought to bear on the area by those employed in these industries and resident in the area. Additionally, as the area becomes more widely known for its recreation potential, more non-resident tourists will make it a destination area for their vacations. The Lakeland Integrated Resource Plan explicitly states the top land use priority in the plan area is recreation. The recreation objective is: "To maintain and develop the widest possible range of recreation land uses within the Lakeland planning area. These range from major destination areas to areas set aside

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[1] Tourism Lac La Biche Country, P. 16. Lac La Biche Regional Economic Development Council, 1985.

[2] Ibid., p. 26.

aside for wilderness recreation. Hunting and fishing are recognized as legitimate integral components of the array of recreational opportunities available."[1]

Other objectives are listed in no particular order of priority. One of these other objectives with relevancy to Highway 55 is the infrastructure objective which is, 'To develop a regional road system capable of serving a wide range of user needs compatible with recreation programs in the region.'[2]

The preceding has provided an overview of the recreational resource potential in the study area. The following will provide more specific information on the area and factors affecting Highway 55.

a) The Northern Woods and Water Route Association (NWWRA)

NWWRA was established in 1973 in Alberta and quickly spread to British Columbia, Saskatchewan and Manitoba. The purpose of the organization is to promote tourism along its route and to organize cavalcades to travel the route. The NWWRA considers the route to be a leisurely, browsing, wilderness route connecting Winnipeg, Manitoba with Dawson Creek, British Columbia. NWWRA has promoted the route to the tourism and transportation departments of the respective provincial governments. The governments have acknowledged the route and, in 1980, in joint action, officially recognized and designated the route, its name and logo.

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[1] Lakeland Sub-Regional Integrated Resource Plan. P. 10 Alberta Energy and Natural Resources, 1985.

[2] Ibid., p. 10.

While officially recognizing the route, the respective governments have not as yet, seen to its complete paving. While the major part of the route is paved in Alberta, the 78 km gravel stretch necessitates detours by the cavalcades to Highway 28. NWWRA finds it difficult to promote the route in Alberta because of this gravel section. Understandably, owners of large and expensive trailers and recreational vehicles are reluctant to subject their investments to the wear and tear of a gravel surface. Consequently, if they travel the route at all, they will not only avoid the gravel surface but also avoid campgrounds and stores such as the ones at Rich Lake and Beaver River which rely on the tourist traffic for a larger part of their incomes.

b) Tourism

The Lakeland Tourist Association (LTA) is an active group promoting the tourism development and potential of northeast Alberta, including the Highway 55 area. The LTA is convinced that the gravel highway has negative impacts on the tourism industry.

The first impact is that potential users avoid the gravel portion for fear of damaging vehicles and getting stuck in wet weather. Since the road is not used by potential tourists, developers of facilities and events cannot justify investment dollars when passby traffic is not substantive enough to support their enterprise. The argument is circuitous because, tourists have no reason to use a road without the facilities or events to attract them.

Representatives of the LTA maintain that there are interested parties considering investing in recreational developments in the area but that they cannot put together a feasible business plan without the assumption that the road will be paved. While there are no guarantees of development occurring, the emphasis and

priority placed on recreational opportunities in the various studies, plans and reports point out prime development opportunities.

The Travel Alberta tourism study,[1] while not representing government policy, identifies tourism opportunities in the area. The opportunities identified include the development of recreation and accommodation facilities on Touchwood, Pinehurst and Beaver Lakes with a minimum capital investment estimate of $250,000 each. Assuming just one such facility on each lake, the minimum total capital investment would be $750,000. Also identified were opportunities to access and develop lakefront facilities on Marie, Moore and Ethel lakes at a minimum capital cost estimate of $100,000 each, for a total minimum of $300,000 in capital investment.

The tourism study identifies 'tourism directions' for the development and improvement of the tourism industry by way of operational and policy improvements. Several directions under the infrastructure heading are relevant to Highway 55 and are listed below:[2]

- Obtain government support for infrastructure development. Roads and utilities are too expensive for many new tourist developments.

- Accelerate highway improvement and new construction programs. Poor road conditions are keeping tourists away from many areas in the zone.

---

[1] Lakeland Tourism Destination Area Study. Travel Alberta. March, 1986.

[2] Ibid., p. 17.

- Implement road improvements to Pinehurst and Touchwood Lakes. These lakes have excellent potential for major recreation destination areas.

While this report risks some originality by referring to and quoting widely from the tourism study, the study does have several important things to say which directly and indirectly support the premise that government must pave the highway, before private development will take place.

> In most situations, a co-operative effort is required to implement a major opportunity or direction. For instance, the construction of a major resort by a private developer would require public support through an approved plan and possibly the construction of new or improved roads and utilities to the site...government is generally responsible for creating a better environment for investment and business...and construction of basic infrastructure such as roads, utilities...
> Lakeland Tourism Destination Area Study. P. 11.

It is evident from the comments of the Lakeland Tourist Association, the findings of the tourism destination study, and the opportunities recognized in the Integrated Resource Plan that the area to the north of Highway 55 has far more potential then is currently being utilized. The following section documents present usage and applies dollar values to their activities.

C) Hunters and Anglers[1]

North of Highway 55, in Wildlife Management Unit 514, there were 2900 hunters registered in 1985. Assuming that each hunter averaged 8.31 hunting days, this results in a total of 24092 hunting days. As average expenditures-per-hunting participant are $86.50 per-person-per-day according to the Canadian Wildlife Service, the gross value of hunting in the area north of Highway 55 is $2,083,958. Allowing for an additional 1000 hunters in Wildlife Management Unit 502, south of Highway 55, adds an additional $718,815 in expenditures to the area for a total of $2,807,773.[2]

In addition to the hunting expenditures, the area is frequented by recreational fishermen. A total of 23,500 anglers used Pinehurst, Frenchman, Ironwood and Wolf lakes in 1985. Based on an average of 6.45 days of fishing each in a year, there is a total of 156,575 recreational angling days. At $24 of direct expenditure-per-day this results in a gross value to the area of $3,637,800 in 1985.[3]

In summary, hunters and fishermen who use Highway 55 contributed roughly $6.4 million to the local economy in 1985.

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[1] Base data supplied by Alberta Forestry, Land and Wildlife, Fish and Wildlife Division, St. Paul.

[2] Source: Alberta Energy and Natural Resources, Fish and Wildlife Division.

[3] Source: Sportfishing Management, Fisheries Management Branch Fish and Wildlife Division, Alberta Energy and Natural Resources.

d) Camping

The study area is a very popular destination for campers. Provincial parks are located at both ends of the area with Sir Winston Churchill north of Lac La Biche to the west, and Cold Lake Provincial Park to the east of Cold Lake. In between thesepoints are seven recreation areas administered by Alberta Recreation and Parks. These seven areas are Fork Lake, Manitokan Lake, Moose Lake East, Moose Lake West, Ethel Lake, English Bay and Frenchman's Bay. Usage of these areas is indicated for the years 1982 to 1985 in Figure 9.

Based on an average party size of three and average daily expenditures-per-person of $29, we arrive at a range of value added to the region of between $1 million and $1.4 million. The camping party night totals are for the May through September period and do not include any winter camping.

In addition to the Provincial Recreation areas, there are also several Alberta Forest Service campgrounds and private campgrounds in the study area. The Tourism Lac La Biche Country study included these other campgrounds for the year 1984. The number of summer camper nights for these selected areas is shown below in Figure 10.

FIGURE 10
SUMMER CAMPER NIGHTS

	No. of Summer Camper Nights	
Beaver Lake	16,524	32%
Beaver Lake Reserve	2,000	4%
Ironwood Lake	4,301	8%
Pinehurst Lake	19,580	38%
Seibert Lake	1,778	3%
Touchwood Lake	7,650	15%
	51,833	100%

SITE	YEAR	CAMPING PARTY NIGHTS[1]	×	AVERAGE PARTY SIZE	=	TOTAL CAMPER DAYS	×	EXPENDITURE PER PERSON	=	TOTAL $ 1982	TOTAL $ 1983	TOTAL $ 1984	TOTAL $ 1985
Fork Lake	1982	3,749		3		11,247		$29		326,163			
	1983	3,350		3		10,050		$29			291,450		
	1984	3,619		3		10,857		$29				314,853	
	1985	4,050		3		12,150		$29					352,350
Manitokan Lake	1982	485		3		1,455		$29		42,195			
	1983	921		3		2,763		$29			80,127		
	1984	535		3		1,605		$29				46,545	
	1985	484		3		1,452		$29					42,108
Moose Lake East	1982	2,430		3		7,290		$29		211,410			
	1983	2,236		3		6,708		$29			194,532		
	1984	2,550		3		7,650		$29				221,850	
	1985	2,939		3		8,817							255,850
Moose Lake West	1982	2,018		3		6,054		$29		175,566			
	1983	2,157		3		6,471		$29			187,659		
	1984	2,442		3		7,326		$29				212,454	
	1985	3,333		3		9,999		$29					289,971
Ethel Lake	1982	920		3		2,760		$29		80,040			
	1983	888		3		2,664		$29			131,457		
	1984	1,511		3		4,533		$29				121,887	
	1985	1,401		3		4,203		$29					121,887
English Bay	1982	2,204		3		6,612		$29		191,748			
	1983	1,526		3		4,578		$29			132,762		
	1984	3,069		3		9,207		$29				267,003	
	1985	2,737		3		8,211							238,119
Frenchman's Bay	1982	548		3		1,644		$29		47,676			
	1983	516		3		1,548		$29			44,892		
	1984	874		3		2,622		$29				76,038	
	1985	1,017		3		3,051		$29					88,479
TOTALS	1982									$1,074,798			
	1983										$1,008,678		
	1984											$1,270,200	
	1985												$1,388,607

[1] Source Alberta Recreation and Parks

HIGHWAY 55

Northeast Alberta

Economic Value of Camping

IDS ID SYSTEMS LTD Environmental and Socio-Economic Consultants

NOVEMBER 1986

FIG. 9

The value to the area of these camper nights at $29 per day is $1.5 million in 1984 (51,833 x $29 = $1,503,157).

If we accept this as a constant value for the years 1982 to 1985 and add it to the yearly totals shown in Figure 9, selected Provincial Recreation Areas, the total economic value to the area is as follows:

FIGURE 11
TOTAL ECONOMIC VALUE

	1982	1983	1984	1985
Provincial Recreation Areas	$1,074,798	$1,008,678	$1,270,200	$1,388,607
Alberta Forest Service and private campgrounds	$1,503,157	$1.503,157	$1,503,157	$1,503,157
TOTAL	$2,577,955	$2,511,835	$2,773,357	$2,891,764

In summary, the current recreation and tourism value in the area is approximately $9.3 million which includes average daily expenditures of hunters, fishermen and campers. As well, minimum capital investment opportunities of $1 million are justifiable in the area based on its recreation potential and proximity to major urban markets.

The following provides a summary of the economic values determined by sector for the study area.

FIGURE 12
SUMMARY OF SELECTED ECONOMIC
VALUES IN STUDY AREA (1985)

i)	Agriculture	- Grain Crops	$5,000,000	
		- Livestock	7,000,000	
				$12,000,000
ii)	Forestry	- Coniferous Harvest	$1,800,000	1,800,000
		(potential value if 100% of AAC produced)	(4,300,000)	
iii)	Oil and Gas		$3,336,905	3,336,905 (grossly underestimated)
iv)	Road Conditions and Safety		N/A	
v)	Recreation and Tourism*	- Hunting	$2,802,773	
		- Fishing	$3,637,800	
		- Camping	$2,891,764	
				$ 9,332,337
			TOTAL	$26,469,242

* Potential Minimum Capital Investment in Tourism Facilities
$750,000 + $300,000 = $1,050,000.

7.0 CONCLUSIONS/RECOMMENDATIONS

a) The highway is, and is recognized as, an important northern east-west transportation link.

b) Notwithstanding its importance, the travelling public will avoid using it if at all possible.

c) There seems to be a perception that this part of the province lags far behind other areas of Alberta in terms of infrastructure development, especially in terms of paved highways and secondary roads in spite of the gains/ improvements made in the last 10 years.

d) Paved roads and highways are a standard to which most Albertans have become accustomed. Current users of highway 55 do not enjoy the same benefits as other Albertans.

e) There is considerable potential for the development of an oil and gas service sector in Lac La Biche. The potential would be enhanced by the paving of Highway 55 which would give these firms good year-round access to the oil and gas fields and the other oil towns of Bonnyville, Grand Centre, Cold Lake and Lloydminster.

f) Selected economic factors indicate that the area's annual economic value ($26.4 million 1985) is slightly in excess of a lump sum cost to pave the highway ($24.2 million [1986]).

g) If the paving of Highway 55 is viewed as an investment in the area by the Province, then it is reasonable for the Province to expect benefits to result.

h) Potential benefits in the area include the development of the tourism/recreation sector, the development of the forestry industry, and the continued development of the oil industry.

i) The sector with the most potential is generally recognized as being the tourism and recreation sector. Potential minimum capital investment in tourism and recreation facilities is $1,050,000.

j) The private sector cannot be expected to invest in first class tourism destination facilities, with second class access to them.

k) As Kananaskis Country required infrastructure development including paved access in place in order to develop the area's tourism potential, so too does the Lakeland area.

l) Projecting participation (2.5% p.a.) and expenditure (5.9% p.a.) increases per the Tourism - Lac La Biche Country report (Travel Alberta figures), for camping, fishing and hunting, results in a 51% or $4 million increase in economic value to the study area by 1990. These figures are based on no improvement to the highway, or development of tourism and recreation facilities.

m) It is logical to conclude that if the highway is paved:
   i) More vehicles will use it and
   ii) East-west access will be improved.
   iii) The development of tourism and recreation facilities will be encouraged.

n) The large urban population of Metropolitan Edmonton would have a quick convenient access to a large, significant recreation area similar to Calgary's access to Kananaskis Country.

o) As there is no reason for the highway not to be paved, and the potential benefits are many and substantial, efforts should be initiated to get the paving of the highway scheduled immediately.

APPENDICES

APPENDIX A

TRAFFIC VOLUME BREAKDOWN ON PRIMARY,
SECONDARY AND OTHER ROADS 1978 - 1985
EXPLANATIONS AND DEFINITIONS

SOURCE ALBERTA TRANSPORTATION
Corporate Planning Branch
Traffic Information Services
April 1985

Introduction

The Traffic Volume Breakdown on Primary, Secondary and Other Roads report presents the breakdown of two way traffic volumes for the observed total monitored for the duration of the study, and AADT and ASDT estimates.

Traffic volumes for this document are divided into three sections: Highways, Secondaries, and Other roads. Other roads include local roads, approach roads, park roads, etc. These are identified under the 999 series.

Each location or site has been identified by its control section number, an assigned traffic control section number, regional identifier, district identifier, municipal identifier and a municipal number which aids in siting locations on a map and selecting specific data for requests.

Observed traffic volumes are broken up into five classes of vehicles: passenger cars, recreation vehicles, bussss, single unit trucks and tractor trailer combinations. Blank fields refer to sites monitored mechanically by permanent and portable counters which do not classify data according to vehicle type.

Traffic volumes expressed as an AADT or ASDT were generated using 97 permanent traffic counter installations throughout the province. These were supplemented by 403 short term portable counter sites monitored for a duration of one or two months and 597 manual count sites, monitored once or twice for a duration of 9 or 12 hours. Traffic volumes in this report represent two way volumes for both observed, AADT and ASDT.

The user is cautioned that the figure indicated "may" or "may not" represent a high degree of confidence. Without the expressed written consent, Alberta Transportation does not assume any responsibility in the use of this data. For specific locations of concern, it is suggested that you contact the Traffic Information Services unit of the Corporate Planning Branch at 427-6720 in Edmonton. For traffic data within urban areas outside of major cities contact Transportation Safety Branch. For data within the major cities contact the Transportation Department within the city.

The factoring procedure for AADT and ASDT involves the following steps:

1. Grouping permanent and portable sites with similar monthly, daily and hourly variations by using a Hierarchial grouping process. This process begins with all the counters in the system and groups each counter on a one to one basis until one ends up with a desired number of groups.

2. Traffic counters are assigned to all primary, secondary and other road links for factoring short term counts to an AADT or ASDT.

3. Manual counts are assigned traffic counters for that location based on the assignment file for that area.

4. Formulas:

$$\text{AADT Manual Count} = \frac{\text{Monitored Manual Volume}}{\text{Assigned Traffic Counter Volume}} \times \text{AADT of Traffic Counter}$$

$$\text{ASDT Manual Count} = \frac{\text{Monitored Manual Volume}}{\text{Assigned Traffic Counter Volume}} \times \text{ASDT of Traffic Counter}$$

Definitions

AADT - is the average daily traffic expressed as vehicles per day for the period of January 1 to December 31, (365 days) Volumes represent two way volumes.

ASDT - is the average summer daily traffic expressed as vehicles per day for the period of May 1 to September 30, (153 days). ASDT may also be written as SADT (Summer Average Daily Traffic).

Busses (BUS) - these include public and commercial passenger carriers and school busses.

Control Section (CS) - is a portion of highway which has an origin at the centre line of a highway, secondary or municipal boundary or district boundary and extends to the next highway, secondary, municipal boundary or district boundary.

Passenger Vehicle (PV) - includes passenger cars, light commercial vans, and small trucks (half tons).

Recreation Vehicles (RV) - includes customized recreation vans, passenger vehicles towing boats, campers or holiday trailers, truck campers, modified vans and busses converted for recreational travel and motor homes.

Single Unit Truck (SUT) - includes trucks with two or three axles with either dual or tandem tires on the rear drive axles.

Tractor Trailer Combinations (TRTL COMB) - these are truck trailer combinations with a minimum of 3 axles and a maximum of 7 axles. Some special cases may have more than 7 axles for transportation of heavy equipment.

Traffic Control Section (TCS) - section of roadway which has similar traffic characteristics. This section of roadway may run from a park boundary to a primary junction, a primary junction to a primary junction, a primary junction to a secondary junction, a secondary junction to a secondary junction , a primary junction to the corporate limits of a town, or a secondary junction to the corporate limits of a town.

APPENDIX B

CONTACTS - SOURCES

CONTACTS

ORGANIZATION	NAME	POSITION	LOCATION
Alberta Agriculture	R. Hockridge	District Agriculturalist	Bonnyville
Alberta Agriculture	H. Yoder	District Agriculturalist	Lac La Biche
Alberta Culture	M. Magnlea		Edmonton
Alberta Economic Development, Small Business Division	A.R. Harlton	Business Development Representative	St. Paul
Alberta Energy and Natural Resources	R. Makowecki	Regional Director	St. Paul
Alberta Energy and Natural Resources, Fisheries Management	E. Stenton	Section Head	Edmonton
Alberta Energy and Natural Resources, Resource Agreements Branch	B. Goltz	Manager	Edmonton
Alberta Forestry, Lands and Wildlife	R. Dunnigan		Edmonton
Alberta Forestry Service	L. Huberdeau	Superintendent	Lac La Biche
Alberta Municipal Affairs, Improvement District Administration	J.P. Leskiw	Manager	Lac La Biche
Alberta Recreation and Parks	B. Bentham	Operational Planner	Edmonton
Alberta Transportation, Regional Transportation Division	N. Chorney	Assistant Deputy Minister	Edmonton
Alberta Transportation, Regional Office	H. Hetu	Regional Director	St. Paul
Alberta Transportation, District Office	J. Schroder	District Transportation Engineer	Lac La Biche

Alberta Transportation, Strategic Planning Services	D. Zarko	Director	Edmonton
Alberta Transportation, Strategic Planning Services	J. Marko		Edmonton
Alberta Transportation, Traffic Engineering and Information Services Section, Corporate Planning Services	P. Kilburn	A/Director	Edmonton
Beaver River Store	R. Harris	Owner	Glendon
Community Advisory Committee	D. Appleby	Director	Grand Centre
Grand Centre Economic Development Committee	K. Drake	Alderman and Committee Member	Grand Centre
Lakeland Tourist Association	G. Hayes M. Robinson	President Manager	St. Paul
Northern Woods and Water Route Association	G. Stephenson	President	Sherwood Park
Regional Economic Development Council	D. McArthur	Director	Lac La Biche
Town of Bonnyville	B. Newell	Town Manager	Bonnyville
Town of Cold Lake	W. Johnson	Mayor	Cold Lake
Town of Cold Lake	M. Goyen	Municipal Administrator	Cold Lake
Town of Grand Centre	R. Coates	Mayor	Grand Centre
Town of Grand Centre	R.L. Coad	Town Manager	Grand Centre
Town of Lac La Biche	R. Bouchard	Mayor (past)	Lac La Biche
Town of St. Paul	W.C. Horner	Municipal Administrator	St. Paul
Travel Alberta	S. Nieuwenhuis	Economist	Edmonton

APPENDIX C

REFERENCE DOCUMENTS

REFERENCE DOCUMENTS

Briefs to the Northern Alberta Development Council

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2. Brief #1151 - A Brief of Concerns to the NADC by the Town of Grande Centre, June 12, 1984.

3. Brief #1154 - Presentation to NADC by ID #18 South, Betty Duckett, June 12, 1984.

4. Brief #1544 - Water Based Cold Lake Provincial Park - Regional Tourism Access Routes by Economic Development Committee, Town of Grande Centre.

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